

WHAT IS CLAIMED IS:

1. A liquid crystal display device comprising:
a thin film transistor formed over a first substrate, the thin film transistor comprising an amorphous semiconductor layer, and a gate electrode adjacent to the amorphous semiconductor layer with a gate insulating film interposed therebetween;
a drain electrode electrically connected to the amorphous semiconductor layer;
a common electrode disposed adjacent to the drain electrode;
a second substrate opposed to the first substrate; and
a liquid crystal interposed between the first and the second substrates, wherein an electric field is applied to the liquid crystal substantially in parallel with a surface of the first substrate by the common electrode and the drain electrode,
wherein a transparent conductive material is provided over the second substrate.
2. A liquid crystal display device according to claim 1 wherein the first and the second substrates comprise a glass or a quartz substrate.
3. A liquid crystal display device according to claim 1 wherein the amorphous semiconductor layer comprises silicon.
4. A liquid crystal display device according to claim 1 wherein the amorphous semiconductor layer is formed over the gate electrode.
5. A liquid crystal display device according to claim 1 wherein the gate electrode and the common electrode are formed on a same layer.
6. A liquid crystal display device according to claim 1 wherein the transparent conductive material functions as an electrode.

7. A liquid crystal display device according to claim 1 wherein each of the gate electrode and the common electrode has a curved surface.

8. A liquid crystal display device comprising:
a thin film transistor formed over a first substrate, the thin film transistor comprising an amorphous semiconductor layer, and a gate electrode adjacent to the amorphous semiconductor layer with a gate insulating film interposed therebetween;
a drain electrode electrically connected to the amorphous semiconductor layer;
a common electrode disposed adjacent to the drain electrode;
a second substrate opposed to the first substrate; and
a liquid crystal interposed between the first and the second substrates, wherein an electric field is applied to the liquid crystal substantially in parallel with a surface of the first substrate by the common electrode and the drain electrode,
wherein a transparent conductive material is provided over an entire surface of the second substrate.

9. A liquid crystal display device according to claim 8 wherein the first and the second substrates comprise a glass or a quartz substrate.

10. A liquid crystal display device according to claim 8 wherein the amorphous semiconductor layer comprises silicon.

11. A liquid crystal display device according to claim 8 wherein the amorphous semiconductor layer is formed over the gate electrode.

12. A liquid crystal display device according to claim 8 wherein the gate electrode and the common electrode are formed on a same layer.

13. A liquid crystal display device according to claim 8 wherein the transparent conductive material functions as an electrode.

14. A liquid crystal display device according to claim 8 wherein each of the gate electrode and the common electrode has a curved surface.

15. A liquid crystal display device comprising:

a thin film transistor formed over a first substrate, the thin film transistor comprising an amorphous semiconductor layer, and a gate electrode adjacent to the amorphous semiconductor layer with a gate insulating film interposed therebetween;

a drain electrode electrically connected to the amorphous semiconductor layer;

a common electrode disposed adjacent to the drain electrode;

a second substrate opposed to the first substrate; and

a liquid crystal interposed between the first and the second substrates, wherein an electric field is applied to the liquid crystal substantially in parallel with a surface of the first substrate by the common electrode and the drain electrode,

wherein a transparent conductive material is provided over a portion of the second substrate.

16. A liquid crystal display device according to claim 15 wherein the first and the second substrates comprise a glass or a quartz substrate.

17. A liquid crystal display device according to claim 15 wherein the amorphous semiconductor layer comprises silicon.

18. A liquid crystal display device according to claim 15 wherein the amorphous semiconductor layer is formed over the gate electrode.

19. A liquid crystal display device according to claim 15 wherein the gate electrode and the common electrode are formed on a same layer.

20. A liquid crystal display device according to claim 15 wherein the transparent conductive material functions as an electrode.

21. A liquid crystal display device according to claim 15 wherein each of the gate electrode and the common electrode has a curved surface.

22. A liquid crystal display device comprising:
a thin film transistor formed over a first substrate, the thin film transistor comprising an amorphous semiconductor layer, and a gate electrode adjacent to the amorphous semiconductor layer with a gate insulating film interposed therebetween;
a drain electrode electrically connected to the amorphous semiconductor layer;
a common electrode disposed adjacent to the drain electrode;
a second substrate opposed to the first substrate; and
a liquid crystal interposed between the first and the second substrates, wherein an electric field is applied to the liquid crystal substantially in parallel with a surface of the first substrate by the common electrode and the drain electrode,
wherein a transparent conductive material comprising indium tin oxide is provided over the second substrate.

23. A liquid crystal display device according to claim 22 wherein the first and the second substrates comprise a glass or a quartz substrate.

24. A liquid crystal display device according to claim 22 wherein the amorphous semiconductor layer comprises silicon.

25. A liquid crystal display device according to claim 22 wherein the amorphous semiconductor layer is formed over the gate electrode.

26. A liquid crystal display device according to claim 22 wherein the gate electrode and the common electrode are formed on a same layer.

27. A liquid crystal display device according to claim 22 wherein the transparent conductive material functions as an electrode.

28. A liquid crystal display device according to claim 22 wherein each of the gate electrode and the common electrode has a curved surface.

29. A liquid crystal display device comprising:

a thin film transistor formed over a first substrate, the thin film transistor comprising an amorphous semiconductor layer, and a gate electrode adjacent to the amorphous semiconductor layer with a gate insulating film interposed therebetween;

a drain electrode electrically connected to the amorphous semiconductor layer;

a common electrode disposed adjacent to the drain electrode;

a second substrate opposed to the first substrate; and

a liquid crystal interposed between the first and the second substrates, wherein an electric field is applied to the liquid crystal substantially in parallel with a surface of the first substrate by the common electrode and the drain electrode,

wherein a transparent conductive material comprising indium tin oxide is provided over an entire surface of the second substrate.

30. A liquid crystal display device according to claim 29 wherein the first and the second substrates comprise a glass or a quartz substrate.

31. A liquid crystal display device according to claim 29 wherein the amorphous semiconductor layer comprises silicon.

32. A liquid crystal display device according to claim 29 wherein the amorphous semiconductor layer is formed over the gate electrode.

33. A liquid crystal display device according to claim 29 wherein the gate electrode and the common electrode are formed on a same layer.

34. A liquid crystal display device according to claim 29 wherein the transparent conductive material functions as an electrode.

35. A liquid crystal display device according to claim 29 wherein each of the gate electrode and the common electrode has a curved surface.

36. A liquid crystal display device comprising:

a thin film transistor formed over a first substrate, the thin film transistor comprising an amorphous semiconductor layer, and a gate electrode adjacent to the amorphous semiconductor layer with a gate insulating film interposed therebetween;

a drain electrode electrically connected to the amorphous semiconductor layer;

a common electrode disposed adjacent to the drain electrode;

a second substrate opposed to the first substrate; and

a liquid crystal interposed between the first and the second substrates, wherein an electric field is applied to the liquid crystal substantially in parallel with a surface of the first substrate by the common electrode and the drain electrode,

wherein a transparent conductive material comprising indium tin oxide is provided over a portion of the second substrate.

37. A liquid crystal display device according to claim 36 wherein the first and the second substrates comprise a glass or a quartz substrate.

38. A liquid crystal display device according to claim 36 wherein the amorphous semiconductor layer comprises silicon.

39. A liquid crystal display device according to claim 36 wherein the amorphous semiconductor layer is formed over the gate electrode.

40. A liquid crystal display device according to claim 36 wherein the gate electrode and the common electrode are formed on a same layer.

41. A liquid crystal display device according to claim 36 wherein the transparent conductive material functions as an electrode.

42. A liquid crystal display device according to claim 36 wherein each of the gate electrode and the common electrode has a curved surface.

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